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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,184	12/31/2003	Richard L. Franklin	ARC-1001USCON1	4994
21302 7590 06/12/2009 KNOBLE, YOSHIDA & DUNLEAVY EIGHT PENN CENTER SUITE 1350, 1628 JOHN F KENNEDY BLVD PHILADELPHIA, PA 19103				
EXAMINER				
LUCAS, ZACHARIAH				
ART UNIT		PAPER NUMBER		
1648				
MAIL DATE		DELIVERY MODE		
06/12/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/750,184

**Applicant(s)**

FRANKLIN, RICHARD L.

**Examiner**

Zachariah Lucas

**Art Unit**

1648

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 142-153 and 157-164 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 142-153 and 157-164 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 142-153, and 157-164 are pending and under consideration in the application.
2. In the prior action, the Final action mailed on January 17, 2008, these claims were pending and rejected in the application.
3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 17, 2009 has been entered.

In the submission, Applicant presented additional arguments in traversal of the objections and rejections of record.

### ***Priority***

4. Applicant's claims for priority to prior applications 08/338,501 (and thus to PCT/SE93/00455) is acknowledged. The Applicant's arguments with respect to the claim of priority, and the inventorship of the application are noted and found persuasive.

However, the claim for priority is objected to as the claim for priority to the '501 application indicates that it claims benefit of the PCT application, when in fact the '501 application is a national stage of the PCT application filed under 35 USC § 371.

Moreover, the statement of priority in the present application does not match the statement of priority in the parent application 09/549642. In the '642 application, the parent

application '501 is indicated to be a continuation of the PCT application PCT/SE93/00455. Prior applications in the current chain of priority specify that the '501 application is a national phase application of the PCT application. In view of the incongruence among the statements of priority in the present and the prior applications, the claim for priority is objected to.

Appropriate correction of the claim for priority is required.

5. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in Sweden on May 22, 1992. In view of the acknowledgment of the claim to priority to the '501 application, and the PCT of which it is a national stage application, the present application is given benefit of the filing date to the Swedish application to extent that it provides support for the claimed subject matter.

#### ***Specification***

6. **(Prior Objection- Withdrawn)** The disclosure is objected to because of the previously identified informalities. In view of the amendments to the application, and the arguments with respect to the inventorship of the application, the objection is withdrawn.

7. **(Prior Objection- Withdrawn)** The specification was objected to for containing referring to sequences without also identifying them by the sequence identifier assigned to them in the sequence listing as required by 37 CFR 1.821(d). Applicant's arguments with respect to the objection are found persuasive. The objection is therefore withdrawn.

8. **(Prior Rejection- Maintained)** Claims 142-148, 150-153, 157-164 were rejected under 35 U.S.C. 102(b) as being anticipated by Lindblom et al. (WO 93/24142). In view of the arguments presented above with respect to the priority claim, and for the reasons that the claim for priority is objected to above, the arguments with respect to this rejection are not found persuasive, and the rejection is maintained.

*Claim Rejections - 35 USC § 103*

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **(Prior Rejection- Maintained)** Claim 149 was rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lindblom (supra.). In view of the arguments presented above with respect to the priority claim, and for the reasons that the claim for priority is objected to above, the arguments with respect to this rejection are not found persuasive, and the rejection is maintained.

11. **(Prior Rejection- Extended and Maintained)** Claims 142-150, and 159-164 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ratcliff (U.S. Patent 4,837,009), in view of Hellgren (U.S. Patent 4,963,491- of record in the IDS of September 2006) and Karlstam (EP 0257003). This rejection is extended to claims 151-153, 157, and 158. These claims are drawn to the claimed inventions wherein the Krill enzymes include a multifunctional enzyme. It

is noted that claim 158 specifically identifies the enzyme as having a molecule weight of between 26 and 32 kD. As noted by the Applicant, Hellgren teaches the use of Krill enzymes with molecular weights of between 20 and 40 kD. Thus, while the combined teachings of the cited art may not specifically have acknowledged the presence of the multifunctional enzyme, by suggesting the use of the Krill enzymes within the indicated size range, the combined teachings of the cited art inherently suggests the use of this enzyme in combination with the other enzymes found within this range.

The Applicant traverses the rejection on five grounds.

First, the asserts that the Hellgren reference does not employ each of the types of enzymes identified as being present among the Krill enzymes. However, even if this was the case, those of ordinary skill in the art would have noted the overlap in the substances to be dissolved for the removal of plaque as identified in columns 3-4 of Ratcliff and the types of molecules targeted by the enzymes found in Krill as noted in column 1 of Hellgren. Because Ratcliff indicates that breakdown of these compounds results in the reduction of plaque growth, it would have been obvious to those of ordinary skill in the art to apply a combination of each of the Krill enzymes to the plaque. Thus, while the teachings of Hellgren may not alone suggest the application of the full complement of Krill enzymes to plaque on teeth, such would have been suggested by the combination of these references.

Applicant next asserts that the teachings of Ratcliff teach the reduction of plaque, not the removal thereof. The argument is not found persuasive. The combined teachings of the cited references suggest the application of the combined Krill enzymes to plaque. First, it is noted that Ratcliff indicates that the compounds present in the plaque are attacked by the compound used in

the reference. Thus, it would have been apparent to those of ordinary skill in the art that compounds that break down the constituents of plaque could be used both for the retardation of plaque growth, and the removal of plaque already present. Further, even if the teachings in the art suggest that the application would merely retard plaque growth, the application would inherently achieve the function asserted by the claimed method. I.e., repeated application of the compounds to retard plaque growth would inherently have the effect of removing the plaque. The second argument is therefore also not found persuasive.

The third argument is an assertion that neither Karlstam or Hellgren teaches or suggests that the krill enzymes oxidize sulphide bonds in sulphated glycoproteins. While this may be the case, it is noted that the teachings of Ratcliff indicates that it is the ability of the compounds of that reference to target each of the types of compounds present in the plaque that results in its efficacy. Column 4, lines 10-23. There is no indication that the sulphide bonds themselves are the critical target. Moreover, the teachings of Karlstam indicate that the krill enzymes target the general classes of compounds, including sulphated structures. See e.g., page 2, third full paragraph of text (indicating that the Krill enzymes attack glycoaminoglycans generally, including amidated and sulphated forms thereof). The fact that the references do not indicate that the krill enzymes target the sulphide bonds is therefore not found persuasive as the enzymes would target these or other bonds present in the target molecules, and it is such targeting generally which is indicated to be required for the efficacy of the combination as an anti-plaque composition.

The Applicant's fourth argument is directed to the indicated teachings of Karlstam regarding hyaluronic acid. The argument is noted, but is not found persuasive. While the

teachings regarding hyaluronic acid alone would not provide any suggestion to those of ordinary skill in the art (based on the teachings of references cited), this assertion ignores the additional teachings of Karlstam and the other cited references as previously described. Because such other teachings do suggest the application of the Krill enzymes as required by the claimed, the argument is not found persuasive.

Finally, the Applicant provides additional arguments directed to the teachings of Hellgren. However, as these arguments also fail to address the additional teachings of each of the cited references, the argument is not found persuasive.

The rejection is therefore maintained for the reasons above, and the reasons of record.

### *Conclusion*

12. No claims are allowed.
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachariah Lucas whose telephone number is (571)272-0905. The examiner can normally be reached on Monday-Friday, 8 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary B. Nickol can be reached on 571-272-0835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Zachariah Lucas/  
Primary Examiner, Art Unit 1648